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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,612	12/26/2006	Stewart Kessel	S9025.0151	3558

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DICKSTEIN SHAPIRO LLP
1177 AVENUE OF THE AMERICAS (6TH AVENUE)
NEW YORK, NY 10036-2714

EXAMINER	
FRANK, NOAH S	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,612	KESSEL ET AL.	
	Examiner	Art Unit	
	Noah Frank	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☒ Claim(s) *29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/28/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 28 has been renumbered 29.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 11-12, 22-23, 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Legrande (WO 03/078531).

Considering Claims 1-3: Legrande teaches electrically conductive coating compositions having a water soluble emulsion polymer binder (3:1-5). The binder is a blend of a first emulsion containing a conjugated diene monomer or comonomer and a second emulsion containing an acrylic polymer (3:5-10). The coating composition contains an effective amount of electrically conductive particles (3:15-20), as well as water (4:1-5). While Legrande does not explicitly state that the composition is energy-

curable (radiation curable), the dispersions contain ethylenic unsaturations, which are inherently capable of being radiation cured.

With regard to the claimed resistivity, the Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 1 ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Considering Claim 4: Legrande teaches using 1,3-pentadiene, an insoluble monomer, and acrylonitrile, a soluble monomer (5:1-5).

Considering Claims 11-12: Legrande teaches using silver or nickel containing particles (3:20-25).

Considering Claims 22-23: Legrande teaches using 12.5% water (16:20-25).

Considering Claims 25-26: With regard to the claimed resistivity, the Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 10^{-2} ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence

would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531), as applied to claims 1 and 4 above, and further in view of Durand (US 5,061,551).

Considering Claims 5-6: Legrande teaches the basic composition as set forth above regarding claims 1 and 4. Legrande does not teach the binder comprising a water-soluble or water-dispersible urethane, polyester, or epoxy resin containing acrylate ester groups. However, Durand teaches UV curable inks based on acrylated urethanes, polyethers, epoxyresins, and polyesters (5:25-6:25). Legrande and Durand are combinable because they are from the same field of endeavor, namely conductive inks. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the acrylated polymers, as taught by Durand, in the invention of Legrande, in order to make an ink with the desired physical properties.

Claims 7-10, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531), as applied to claims 1 and 4, and further in view of Batting et al. (US 2003/0119941).

Considering Claims 7-8: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the binder or water-soluble monomer comprising an ester of acrylic or methacrylic acid with polyethylene glycol or with one of the claimed alcohols.

However, Batting et al. teaches UV curable inks comprising a water-soluble monomer that is an ester of acrylic or methacrylic acid with polyethylene glycol or with a mono-, di-, tri- or tetra-hydric alcohol derived by ethoxylating with ethylene oxide a mono-, di-, tri- or tetra-hydric aliphatic alcohol of molecular weight less than 200 (¶0025). Legrande and Batting are combinable because they are from the same field of endeavor, namely UV curable inks. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the acrylic esters, as taught by Batting, in the invention of Legrande, in order to make an ink that is elastic and flexible (¶0012 of Batting).

Considering Claims 9-10: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the binder or water-insoluble monomer comprising an acrylate or methacrylate ester of a mono-, di-, tri-, tetra-, penta-, or hexa-hydric alcohol having a molecular weight of less than 300.

However, Batting et al. teaches UV curable inks comprising a monomer that is insoluble in water, which is an acrylate of methacrylate ester of a mono-, di-, tri-, tetra-,

penta-, or hexa-hydric alcohol having a molecular weight of less than 300 (¶0028). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the acrylic esters, as taught by Batting, in the invention of Legrande, in order to make an ink that is elastic and flexible (¶0012 of Batting).

Considering Claims 27-28: Legrande teaches the basic composition as set forth above. Legrande does not teach curing the composition via ultraviolet or electron beam.

However, Batting et al. teaches curing UV curable inks via ultra-violet light (¶0033). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used ultraviolet light, as taught by Batting, in the invention of Legrande, in order to efficiently cure the ink.

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531).

Considering Claims 13-15: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the claimed percentages. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. The solubility of the ink may be varied according to the ratio of water-dispersible oligomer, water-soluble monomer, and water-insoluble monomer. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable,

which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney,* 205 USPQ 215.

Claims 16-21, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531).

Considering Claims 16-21: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the claimed ratios or percentages of conductive material. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. The resistivity of the ink may be varied according to the amount of conductive material. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney,* 205 USPQ 215.

Considering Claim 24: Legrande teaches electrically conductive coating compositions having a water soluble emulsion polymer binder (3:1-5). The binder is a blend of a first emulsion containing a conjugated diene monomer or comonomer and a second emulsion containing an acrylic polymer (3:5-10). The coating composition contains an effective amount of electrically conductive particles (3:15-20), as well as water (4:1-5). While Legrande does not explicitly state that the composition is energy-curable (radiation curable), the dispersions contain ethylenic unsaturations, which are inherently capable of being radiation cured. In addition, Legrande teaches using 1,3-

pentadiene, an insoluble monomer, and acrylonitrile, a soluble monomer (5:1-5), and using 12.5% water (16:20-25).

With regard to the claimed resistivity, The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 1 ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Legrande teaches the basic composition as set forth above. Legrande does not teach the claimed ratios or percentages. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. The resistivity and solubility of the ink may be varied according to the amount of conductive material and water-soluble and insoluble monomers. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney,* 205 USPQ 215.

Claim 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Batting et al. (US 2003/0119941) in view of Legrande (WO 03/078531).

Considering Claim 29: Batting et al. teaches radiation curable inks comprising a photopolymerizable water-soluble oligomer or prepolymer (¶0024), an ethylenically unsaturated (photopolymerizable) water-soluble monomer (¶0025), an ethylenically unsaturated (photopolymerizable) water-insoluble monomer (¶0028), water (¶0030), and 1-5% photoinitiator (¶0026).

Batting et al. does not teach a particulate electrically conductive material. However, Legrande teaches inks having electrically conductive particles dispersed in binder (3:15-20). Batting and Legrande are combinable because they are from the same field of endeavor, namely UV curable inks. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used electrically conductive particles, as taught by Legrande, in the invention of Batting, in order to make conductive inks.

Legrande does not teach the claimed ratios or percentages. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. The resistivity and solubility of the ink may be varied according to the amount of conductive material and water-soluble and insoluble monomers. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable,

which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney,* 205 USPQ 215.

With regard to the claimed resistivity, The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 10^{-2} ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached form PTO-892.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noah Frank whose telephone number is 571-270-3667. The examiner can normally be reached on M-F 7-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NF
12-17-07

MARK EASHOO, PH.D.
SUPERVISORY PATENT EXAMINER

20/Dec/07